

In the Specification

The specification paragraph numbers below refer to the paragraph numbering of the application as originally filed. The specification amendments filed on November 3, 2006, referred to the paragraph numbers of the published application, and are thus repeated herein with reference to the paragraph numbers of the specification as originally filed. Please substitute the original paragraphs 2, 38, 49 and 55 for the paragraphs 2, 38, 49 and 55 as amended below:

[02] This patent application is related to the following co-pending applications, each of which having the same named inventor and filing date as the present application:

- a. U.S. Patent Application Ser. No. 10/001,357, entitled "Non-Conformance Monitoring And Control Techniques For An Implantable Medical Device," having attorney reference no. 011738.00045 (based on U.S. Provisional Application Ser. No. 60/259,008, filed Dec. 29, 2000);
- b. U.S. Patent Application Ser. No. 10/000,701, entitled "Drug Management Techniques For An Implantable Medical Device," having attorney reference no. 011738.00044 (based on U.S. Provisional Application Ser. No. 60/259,115, filed Dec. 29, 2000); and
- c. U.S. Patent Application Ser. No. 10/000,712, entitled "Therapy Management Techniques For An Implantable Medical Device," having attorney reference no. 011738.00043 (based on U.S. Provisional Application Ser. No. 60/259,116, filed Dec. 29, 2000).

[38] The implantable drug delivery device 105 can be used for a wide variety of therapies to treat medical conditions (also known as medical indications) such as pain, spasticity, cancer, and many other medical conditions. The implantable drug delivery device 105 is typically implanted by a clinician, such as a surgeon, using

a sterile surgical procedure performed under local, regional, or general anesthesia. Before implanting the therapeutic substance infusion device, a catheter is typically implanted with the distal end position at the desired therapeutic substance infusion site and the proximal end tunneled to the location where the therapeutic substance infusion device is to be implanted. The implantable therapeutic substance infusion device is generally implanted subcutaneously about 2.5 cm (1.0 inch) beneath the skin where there is sufficient subcutaneous tissue to support the implanted system. As one example, FIG. 3 illustrates the implantable drug delivery device 105 coupled to catheter 205, both of which are under the surface of the skin 4. The catheter 205 is positioned with its distal tip in the intrathecal space of the spinal column 3. As another example, FIG. 4 shows the implantable drug delivery device 105 for infusion of drug into to brain B. The device 105 includes substance filling port 40 and is coupled to catheter 205 with a distal end 207 terminating within the brain B. FIG. 5 illustrates the various components of the implantable drug delivery device 105 that are implanted within the patient 10.

- [49] Referring to the schematic block diagram of FIG. 9, the implantable device 105 includes various electrical and software components including a microprocessor 730, a flow control module 740 for controlling the flow of drug from the reservoir to the infusion port, a telemetry module 720 for providing bidirectional communication between the implantable device 105 and the external device 110, a memory 725 for storing the various software modules for use with the present invention, a drug monitor module 735, and (optionally) a drug scheduling module 115. The drug monitor module 735 provides one or more drug usage parameters that determine the amount of drug remaining in the implantable device 105. Drug usage parameters monitored by the drug monitor module 735 may include, for example and without limitation, the quantity drug consumed by the patient, the rate in which the drug is being consumed by the patient, and the estimated date

that the drug in the pump 745 will be exhausted based on the previous two parameters. Drug usage parameters maybe determined, for example, by way of a pump reservoir sensor 750 that senses the amount of drug remaining in the pump reservoir. For example, the pump reservoir sensor 750 disclosed in U.S. Pat. No. 6,099,495 [...] having Application Ser. No. 09/070,255, filed Apr. 30, 1998, and entitled "Reservoir Volume Sensor", may be used.

- [55] Scheduling management algorithm may be called for more than just for refilling the pump. For example, if it is determined that the therapy is not as effective as desired or expected, the scheduling management algorithm 832 may be called upon to arrange for the patient to be seen by a physician. See U.S. Patent Application Ser. No. 10/000,701, entitled "Drug Management Techniques for an Implantable Device," filed on the same date as the present application, having the same named inventor and having attorney reference no. 11738.00044. As used herein pump refill or servicing shall include any number of pump maintenance matters, including but not limited to, software updates, software modifications, pump refills, and power supply recharge.